

REMARKS

Claims 1-4 and 8-20 are pending in the above application. By the above amendment, claims 5-7 have been cancelled, and claims 16-20 have been added.

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by JP 09-102463 (hereinafter "Yoshiaki"). Claims 2-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshiaki. By the above amendment, the limitations of claim 6 have been added to claim 1. Claim 6 was not rejected under 35 U.S.C. 102(b), and the withdrawal of the rejection of claim 1 under 35 U.S.C. 102(b) based on Yoshiaki is respectfully requested in view of the above amendment.

It is respectfully submitted that claim 1 as amended patentably distinguishes over Yoshiaki. The Office Action indicates that the claimed shapes of various portions of the first and second nozzles are obvious because "there is no indication that the different configurations were significant." The case of *In re Dailey*, 149 U.S.P.Q. 47 (CCPA 1966) is cited for the proposition that different shapes must have some significance in order to patentably distinguish over art lacking the recited shape. The *Dailey* case involved the shape of a rounded portion of a baby bottle. The claim at issue required the rounded bottom to be "less than a hemisphere." The relevant art showed a bottle that had a rounded bottom that comprised more than a hemisphere. However, no reason for the "less than a hemisphere" limitation was provided by the applicant, and the court held that the recited shape was a mere matter of design choice.

In the present case, the claimed shapes of the nozzle portions provide benefits discussed throughout the specification. For example, at page 26 of the present specification, the paragraph beginning on line 16 indicates that nozzles having first and second widths substantially as claimed allow for a reduction of the clearance between the substrate and the inner tube of the furnace. This, in turn, allows more equal distribution of gas over a substrate which improves uniformity of film thickness. The nozzle cross sectional shape may also allow the volume of the furnace to be reduced and allows for the use of nozzles having portions with enlarged cross sections without increasing the size of the furnace or reducing clearance between the nozzle and the substrate. A nozzle having a large circular cross section in a portion opposed to a heater would likely require an increase in the size of the furnace to accommodate the enlarged nozzle.

Nozzles having cross sectional shapes as recited in claim are not shown or suggested by the art of record, the cross sectional shape is significant, and claim 1 as amended is submitted to be allowable over the art of record for at least this reason.

Claims 2-4 and 8-14 depend from claim 1 and are submitted to be allowable for at least the same reasons as claim 1.

Claim 15 is rejected under 35 U.S.C. 102(b) as being anticipated by Yoshiaki. By the above amendment, limitations regarding the shape of a portion of the nozzle similar to the limitations of former claim 6 have been added to claim 15. The significance of nozzle cross sectional shape is discussed above in connection with claim 1. Yoshiaki does not disclose nozzles having the claimed cross sectional shapes. Claim 15 is therefore submitted to patentably distinguish over Yoshiaki for at least the reasons provided above in connection with claim 1.

New claim 16 is also submitted to be allowable over the art of record. Claim 16 recites a substrate processing apparatus that includes, inter alia, a first nozzle and at least one second nozzle attached to a reaction container, where the first nozzle is disposed in the reaction container such that it is not opposed to a heater, and the at least one second nozzle is disposed in the reaction container so that a portion is opposed to the heater. Claim 16 further recites that a flow-path cross-sectional area of a portion of the at least one second nozzle that is opposed to the heater is greater than a flow-path cross-sectional area of the second nozzle nozzle-attaching portion and a flow-path cross-sectional area of the first nozzle. This arrangement of first and second nozzles is not shown or suggested by the art of record, and claim 16 is submitted to be allowable for at least this reason. Claim 19 is submitted to be allowable for similar reasons.

Claim 18 is also submitted to patentably distinguish over the art of record. Claim 18 recites a substrate processing apparatus that includes a first nozzle and a second nozzle attached to the reaction container, the first nozzle disposed in the reaction container such that it is not opposed to a heater and the second nozzle disposed such that a portion is opposed to the heater. In addition, a flow-path cross-sectional area of the portion of the second nozzle that is opposed to the heater is greater than a flow-path cross-sectional area of the first nozzle. Such an arrangement is not shown or suggested by the art of record, and claim 18 is submitted to be allowable for at least this reason.

Claim 20 is submitted to be allowable for reasons similar to those provided above in connection with claim 18.

CONCLUSION


Each issue raised in the Office Action dated June 4, 2007, has been addressed, and it is believed that claims 1-4 and 8-20 are in condition for allowance. Wherefore, reconsideration and allowance of these claims is earnestly solicited.

Should there be any outstanding matters that need to be resolved in the present application, the examiner is respectfully requested to contact Scott Wakeman (Reg. No. 37,750) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.14; particularly, extension of time fees.

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Respectfully submitted,

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